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ABSTRACT

Applied performance tests (APTs) are defined as tests designed to measure performance, in an actual or simulated setting, of tasks significant to a student's life outside the school or significant to adult life. A number of examples are presented to illustrate which skills may be classified as applied performance (such as file a tax return or drive a car safely), as opposed to non-applied performance skills (decode new words, or demonstrate knowledge of driving rules). These non-applied skills, it is noted, are often prerequisites of applied performance: one must learn the rules of the road before being able to drive a car safely. The essential characteristic of APTs is systematic measurement of observable behaviors described in terms of process, product or both in real or simulated settings where previously learned skills and concepts can be applied in problem situations derived from the goals of the institution or sponsor. APTs are briefly contrasted with normative, criterion-referenced, and mastery tests. If is suggested that APTs can be useful for selection, certification, diagnosis, and classification; that they may increase student motivation; that they reinforce experiential learning; and that they may help improve teacher-community relationships. (GDC)

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APPLIED PERFORMANCE TESTING

WHAT IS IT?

WHY USE IT?

(Paper I)

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Foreword

The Clearinghouse for Applied Performance Testing, among other functions, serves as a clearinghouse and information center for users or potential users of applied performance testing and assessment materials.

This paper was prepared for the Clearinghouse by Hugh F. McKeegan of the Department of Education at Bucknell University, Lewisburg, PA. Its principal purpose is to provide information for elementary and secondary teachers who have an interest in applied performance testing and its potential for the improvement of instruction in their classrooms. Other references regarding applied performance testing may be secured by writing to CAPT at the address indicated on the cover page.

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Introduction

What is your recollection of student teaching? Pause for a moment and reflect upon all the words that come to mind when you consider your own experiences in student teaching. Was it exciting, boring, challenging, terrifying, interesting, stimulating, or stultifying? Do you recall it as an opportunity to apply what you had learned concerning method and content in a realistic school situation? Actually, since student teaching is such a complex set of learning experiences and extends over a considerable period of time, all of the adjectives mentioned above and even more might apply to your own experience. For some, student teaching might be recalled as the high point of their professional preparation for teaching; for others, it was either an endless bore or a traumatic hurdle on the way to a full-time teaching position. In any case, you "passed" student teaching or you probably wouldn't be reading this paper!

Now let's consider, in a preliminary way, whether student teaching was an applied performance test (APT). In a very general sort of way, it may have been, but it was also an initiation, a "rite of passage," into the teaching profession. Many would see student teaching more as the practice of techniques of teaching rather than as a test of

teaching. For a great many of us, the first year of teaching was the real test, while student teaching was merely practice under the guidance of an experienced teacher who combined in varying degrees the characteristics of critic, coach, counselor, taskmaster, and observer.

Student teaching is certainly performance oriented and carried out in applied contexts that are more or less realistic depending upon such variables as school setting, administrative constraints, and the characteristics of the "cooperating" or "critic" teacher. Whether student teaching is a test is a highly debatable point. It usually lacks those qualities of reliability, validity, and generalizability, which we consider important in good tests. Student teaching in the holistic sense involves so many complex behaviors that it would be extremely difficult to test via a single applied performance. Perhaps we can more objectively test individual behaviors (question asking, lesson planning, etc.) as researchers in teacher education have already done. In any case, our student teaching example may serve as a vehicle for asking certain questions about applied performance tests:

1. If student teaching is not an applied performance test or is a poor example of one, just what is an applied performance test?
2. What are some examples of applied performance tests?
3. What does an applied performance test involve? What are its characteristics?

4. How do APTs differ from the tests I now use?
   What are the similarities and differences?
5. Why should I use applied performance tests?

Information regarding these questions will be presented in the following pages. In preparing this material, an attempt has been made to be concise without being superficial. If you wish to pursue any question in greater depth, please consult the bibliography, other references available from your school district, or write to the Clearinghouse for Applied Performance Testing at the address listed on the cover page.

JUST WHAT IS AN APPLIED PERFORMANCE TEST?

According to the Clearinghouse for Applied Performance Testing, APTs are: "designed to measure performance in an actual or simulated setting. In education performance tests focus on the measurement of performance on tasks significant to a student's life outside the school or to adult life."[1]

In the definition suggested by the Clearinghouse for Applied Performance Testing, the emphasis is on performance, on observable behavior in a job or life task. Note the emphasis on "life outside the school" and "adult life."

Performance tests with varying degrees of application in real situations are certainly not unknown in several areas of the elementary and secondary curriculum. Shop, home economics, business education, and driver education teachers use such measures regularly. But applied performance is certainly not limited to these subjects. To quote Boyd & Shimberg:

> The range of applications for performance tests is very large . . . . Performance measures can be used by science teachers to evaluate the proficiency of students in doing laboratory work; by teachers of foreign languages to assess the speaking and listening abilities of students; by music teachers to determine the skills of students in playing an instrument or in their capacity to recognize themes and other characteristics of compositions; by English teachers to assess the public speaking skills of students; by social studies teachers to find out if students can recognize propaganda in newspaper reports.

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[1] Clearinghouse for Applied Performance Testing, CAPT Newsletter, I, 6 (Portland, Oregon: September, 1975).

> These are but a few of the many possibilities for using performance measures to evaluate instructional outcomes.[2] (Emphasis added.)

Would all of the examples cited above by Boyd & Shimberg meet the definition of CAPT for applied performance tests? Much would depend on the degree to which the tasks proved to be significant in terms of out-of-school or adult life and the degree to which the test was conducted under realistic conditions. Working in a school laboratory with carefully structured problems and under the close supervision of a teacher can be a quite different experience from working in a situation which embodies the responsibilities, problems, and pressures of time and production involved in a "real life" situation, such as a hospital laboratory or the metallurgical lab of a steel mill. Presenting one's views before a fairly docile class in public speaking is a quite different experience from espousing an unpopular view before a hostile audience at a school board or council meeting.

This is not to suggest that schools should not use more performance tests and performance-oriented teaching as suggested by Boyd & Shimberg and others. Teaching and testing in performance settings are critical components in assuring that more students will be able to handle real life situations. The fact that reality may be difficult or impossible to re-create should not be used as an excuse for not attempting performance testing. Using APTs as an integral part of the school program

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[2] J. L. Boyd, Jr., & B. Shimberg, "Developing Performance Tests for Classroom Evaluation." T M Reports #4, ERIC Clearinghouse on Tests, Measurement & Evaluation, ETS, Princeton, NJ, pp. 1 & 2, June 1971.

represents a challenge to your creativity and ingenuity as a teacher.

Many very useful applied performance tests can be conducted in the classroom or on the school site. In considering the concept of applied performance testing, however, do not limit your thinking to what you can do in the classroom. Although you will probably begin with applied performance tests that you can conduct in your class or school building, don't overlook the possibilities of using parents and community resource people and sites for performance related teaching and testing. Many simple applied performance tests can be conducted in the community or with the help of resource people from the community. The local bank, post office, supermarket, hospital, or even other buildings or programs within the school system can offer opportunities for applied performance teaching or testing.

As part of an elementary language arts-social studies unit, pupils might, with the cooperation of their parents, secure an application for a Social Security number, complete the forms properly, buy postage and mail the forms, and determine the amount of time involved in having a number assigned by the Social Security Administration. Senior high students could test the concepts and skills learned in child growth and development or family living classes through assisting with nursery school or kindergarten classes, etc. Through an analysis of the school system and community, many other resources for applied performance testing an teaching can be identified.

WHAT ARE SOME EXAMPLES OF APPLIED PERFORMANCE TESTS?

Applied performance testing has been developed to a higher level of sophistication in such areas as the military, business and industry, and vocational education than it has in general elementary and secondary education. Thus, examples of well developed tests and test situations tend to come from outside K-12 education rather than from within it.

Following are some examples of applied performance tests together with examples of related behaviors which of themselves are not applied performances.[3]

Examples	Non-Examples
Reading	**Reading**
Comprehend a newspaper.	Read sightwords.
Read a lease.	Decode new words.
Follow the directions on a medicine bottle.	Use syllabication skills.
Read a ballot to vote.	Identify different styles of reading.
Locate information about possible vacation sites, their costs, advantages, and disadvantages.	
Read and interpret the book of instructions for a major appliance.	
Use the library to locate reference material.	

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[3]The list of examples and non-examples is taken from the CAPT Newsletter, Vol. I, #5 (July 1975), with additions.

Math

File a tax return.
Make a budget.
Make or count change.
Calculate gasoline mileage.
Calculate the true interest on an installment purchase.
Calculate unit prices in a supermarket.
Check the cash register tape against a list of groceries and determine if the clerk made any errors.
Interpret telephone bills in terms of base rate, taxes, and costs of toll calls.

Math

Demonstrate a knowledge of:
- Basic tables and authentic facts.
- Algorithms.
- Properties of the number system.
- Interpret word problems and do appropriate calculations.

Career Development

Fill out an application for a job.
Find a job using correct sources.
Demonstrate how to present qualitifations for a particular job in an interview situation.
Use the newspaper want ads to find a "job" for a real or fictitious friend.

Career Development

Demonstrate an awareness and knowledge of careers and occupations.

Social Science and Life Skills	Social Science and Life Skills
Drive a car safely. Use communication skills appropriately. Read and correctly interpret a road map. Write and send a letter to a Congressman or Senator presenting an argument for or against a particular bill. Locate information about the advantages and disadvantages of banks vs. savings and loan institutions, decide which is better for your purposes, and open an account there.	Demonstrate a knowledge of: The Bill of Rights. Rules of the road. Grammar and usage rules. Rules of debate. Rules of logic. Sources of information.

Please note that the non-examples are not to be considered unimportant educational outcomes; they are often prerequisites for completing the examples of applied performance tasks. Therefore, in teaching, you should not settle for acceptable performance on the prerequisite behaviors alone or on the applied performance tests alone. In some instances, a student can "learn" to perform the tasks called for in an applied performance test without a good command of the prerequisite behaviors involved. This student may become incompetent as soon as the nature of the task is changed sufficiently so that it cannot be performed acceptably by rote memory alone.

Conversely, some students can demonstrate a high degree of competence

in the prerequisite behaviors but are not able to transfer their learning to the applied situation. There are a variety of reasons why this may occur, and the combination of reasons involved may vary from student to student. Determining the reasons for student failure in the applied testing situation will require your best skills as an educational diagnostician, since it may involve complex sets of knowledge, attitudinal, and even psychomotor elements.

If schools do not use applied performance tests where appropriate, they cannot determine whether their curriculum is adequate to assure that students can manifest the ability to handle real problems. Careful testing of both prerequisite knowledge and real-life skills is critical if you are to be an effective teacher in preparing children for today's world.

WHAT ARE THE MAIN COMPONENTS OF A THOROUGH AND WELL DEVELOPED APPLIED PERFORMANCE TEST?

As has been stated previously, an applied performance test involves "measuring performance in an actual or simulated setting." Further, APTs "focus on the measurement of performance on tasks significant to a student's life outside the school or to adult life."[4]

Inherent in this definition is the necessity for identifying that knowledge and skill critical to survival in our present society which can best be measured by student performance in response to realistic problem situations. Realism, of course, must be consonant with the resources of the school, the importance of the objective involved, and concern for such factors as student safety.

By probing and analyzing this definition further, we can develop a list of the essential and incidental characteristics of an applied performance test.

Using this approach, we could say that the essential characteristics must always be present if a particular example is to be considered an applied performance test whereas the incidental characteristics may or may not be present, depending on the nature and purpose of the instrument.

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[4] CAPT Newsletter, Vol. 2, #1 (Sept. 1975).

APPLIED PERFORMANCE TESTS

ESSENTIAL CHARACTERISTICS	INCIDENTAL CHARACTERISTICS (Partial List)
1. SYSTEMATIC MEASUREMENT of 2. OBSERVABLE BEHAVIORS defined in terms of 3. EITHER PROCESS OR PRODUCT OR BOTH in 4. REAL OR SIMULATED SETTINGS where 5. PREVIOUSLY LEARNED CONCEPTS AND SKILLS CAN BE APPLIED IN PROBLEM SITUATIONS derived from 6. THE GOALS OF THE INSTITUTION OR SPONSOR.	1. Paper and pencil instruments are excluded unless they are a natural component of the life situation (e.g., balance sheets in accounting, preparing a legal brief). 2. Usually an individual test but conceivably may involve groups or teams. 3. May be developed by the teacher, the school or by an external agency. 4. May be used in addition to or in place of more traditional credentialling processes. 5. Etc. 6. Etc.

Let's consider the essential characteristics listed above.

SYSTEMATIC MEASUREMENT--This characteristic eliminates informal classroom observations of student performance from being considered as applied performance tests, even though these practices are an essential part of good teaching. The test or measurement procedures must be derived from the goals of the institution or program (more on this later) and systematically designed and field tested with due attention to a scoring and reporting system. If the test is "in your head" and always

requires your personal intervention to administer, then it does not fully meet this first criterion of systematic measurement. Applied performance tests should be described in written form with directions for administration, for construction of special equipment which may be needed, and for scoring and reporting. Tests which are highly personalized to you as a teacher are a good starting point in development, but until they can be administered, scored, and evaluated by others, they are not formal APTs.

OBSERVABLE BEHAVIORS--Even if the behavior is limited to circling true or false or checking a muliple choice item, all tests involve some observable behavior. The kind of behavior to be elicited in an APT is governed by other characteristics related to the goals of the institution or program, the appropriateness of the environment, social priorities at any point in time, and the realism of the problem situation. Asking a would-be lawyer to use a law library to prepare a brief on a legal question with which his sponsor is dealing in a court is a realistic APT because it calls for realistic behavior. Requiring a would-be plumber to prepare an essay on how he would diagnose and correct problems in a malfunctioning septic system could be a useful exercise for certain objectives in the vocational program or in the English department; however, it would not serve as an APT for plumbing. The mode of response, an essay, is too remote from the steps the plumber would follow in diagnosing and correcting real septic system problems. For some would-be plumbers, the mode of response might even interfere with the demonstration of their ability to solve the problem. While developing the plumber's essay-writing

talents may make him a happier and more complete individual, his customers' satisfaction will depend primarily on whether he can do plumbing. Of course, such administrative concerns as development costs, time involved in administration, and the necessity, in many cases, for individual scoring dictate that APTs be used only for those behaviors which are critical indicators of either on-the-job competence or important civic and social skills.

PROCESS AND PRODUCT OUTCOMES--In many learning and teaching situations the processes and the outcomes of those processes are inextricably linked. In art, for example, the nature of the product depends not only on the creativity and the skill of the artist, but also on the processes and materials used to achieve a particular effect. Accounting and bookkeeping may also involve a heavy emphasis on both process and product. It is very possible that balanced ledgers may be arrived at through unorthodox processes, but these processes may be difficult for other accountants to follow or verify. Thus, standardized processes permit, in this instance, comparisons among ledgers and validation of the product by others.

In still other situations, process is very important because of its social consequences. Driving a car safely and responsibly involves the integration of a large number of cognitive, perceptual, psychomotor, and attitudinal elements. Here you are interested not only in whether John or Mary can get from point X to point Y by car (the product), but also how they handle the car so as not to endanger the lives of others (the process).

There are also learning situations in schools where the emphasis may be more on process than on product. The chemistry or physics teacher does not really expect new scientific discoveries from his students, but he is quite interested in the processes they use to conduct laboratory work, analyze scientific problems, and generate defensible hypotheses. Similarly, the social studies teacher may use whatever current social problems are of interest to students as vehicles for his teaching, but with the intention of teaching methods or processes useful in dealing with the yet unknown problems which the students will face as adult citizens.

Further, the emphasis on process or product may shift depending on the nature of the curriculum objective and the learning outcomes involved for a particular group of students. The emphasis given in a personal typing class to process (typing procedures) and product (speed and accuracy) may vary from that in an advanced secretarial class.

Finally, there are a few situations where our primary interest may be in the quality or nature of the outcome. If the baseball pitcher consistently throws the ball in the strike zone or if the rifleman or archer consistently hits the target then certain departures from accepted form can certainly be forgiven.

In any case, in developing an APT, you must decide whether process or product (outcome) has the higher priority or whether each is equally important. Such a decision affects the design of the test and it dictates what criteria are most important in judging student performance. Decisions regarding process and product priorities must be logically defensible in

terms of the nature of the task and the curriculum goals which are involved.

REAL OR SIMULATED SETTING--An APT depends for its validity on the extent to which

a. the behavior(s) tested is (are) critical to, and representative of, that which would be involved in coping successfully with the real problem situation.

b. the conditions for testing represent as closely as is feasible the reality of the environment in which the student is expected to perform.

In many instances, you can only begin to approximate condition b.[5] Nearly all driver education students will eventually drive a car in a dust storm or on a wet or icy highway at night in conditions of poor visibility due to fog or snow. To re-create this situation would involve enormous expense and real danger to the student and his teacher. Driver education simulation devices may permit presenting this kind of problem with some degree of authenticity. If even these devices are not available, the teacher may have to settle for the demonstration of a high degree of skill in handling the car under normal conditions, films and lectures on what to do in abnormal situations of ice and poor visibility, and perhaps some limited practice in how to correct for skids in the comparative safety of the school parking lot or a specially designed

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[5] William C. Osborn, "An Approach to the Development of Synthetic Performance Tests . . .," Fort Knox, Kentucky, Human Resources Research Assoc., Div. 2, 1970, 10f.

driver training course. The validity of the test is assured only to the extent that the conditions under which it is presented are very similar to the real situation in which the behavior will be required.

The simulated situation may not arouse all of the tension, anxiety, and emotional involvement that the student might experience in the real world. Writing a check in a simulated supermarket, where the student knows that the money is "not for real" and where he can easily receive assistance, is quite different from writing a check for real money in a noisy, crowded supermarket check-out line under the gaze of a skeptical clerk. The simulated situation does provide the practice needed for a much larger proportion of students to cope successfully with the real situation, a not unimportant outcome in any teaching situation. (You must be careful, though, not to assert that successful performance in the simulated situation will assure success for all students in the real situation, particularly where the opportunity for continuing practice is not present or where considerable time intervenes between the simulation and the real situation.)

APPLICATION OF PREVIOUSLY LEARNED CONCEPTS AND SKILLS--Purchasing a major appliance intelligently, selecting candidates for whom to vote in an election, and planning a nutritional meal all involve the application of such skills as critical reading and analysis of data, mathematical computation, and analysis and synthesis of information. Decisions regarding each of these tasks involve an understanding of such concepts as planned obsolescence and interest, conservatism, liberalism, propaganda, calories, vitamins, and many, many more as they are appropriate to the task at hand.

All tests involve in varying degrees command and application of skills and concepts learned either in preparation for the test or in other contexts. In many instances, the student may be only subliminally aware of these underlying concepts and skills. If he is a skilled tradesman or professional practitioner, he may, after much practice, carry out a certain procedure without even thinking of its cognitive or psychomotor components. It is also true that one can be trained to perform a particular procedure, drive a car, arm a missile, or set up a field radio, for example, with only a very limited understanding of the principles of physics, electronics, or mechanics involved. There may even be rare situations in military and industrial training where we wish psychomotor responses to be made in a set manner without thought to the concepts or intentions underlying the act. Schools have different purposes, however. One objective of schools is to bring cognitive understanding and analysis to some conscious level. Thus, in schools, applied performance tests should be looked upon as manifestations of understanding of concepts and principles rather than as substitutes for such understanding.

Command of the concepts and principles underlying an applied performance gives much greater assurance that the student will be able to deal with the performance in new or even presently unknown settings and to transfer his skills to the solution of problems which are different from, but analogous to, the stimulus situation in the test. Where only a limited number of APTs can be developed or used, the extent to which particular tests involve application of a range of important concepts

and skills taught in schools can be used as a criterion for test selection or development.

BASED ON THE GOALS OF THE INSTITUTION OR PROGRAM--Applied performance testing is not a new phenomenon in many educational and training contexts. The military, business, industry, trade unions, various professional organizations, and some technical and vocational programs make extensive use of applied performance tests for training or certification purposes. Elementary and secondary schools, on the other hand, use various kinds of paper and pencil tests extensively; a practice that is reinforced by the ready availability of standardized achievement and intelligence tests and the weight of tradition and practice. The fact that standardized tests are easy to use does not mean that they should be used as extensively as they are in some elementary and secondary schools. You should be able to show a logical relationship between the various standardized and teacher-made tests used in a school and the goals of that school. Unfortunately, in the rush to develop curriculum and instructional packages, careful analysis of the goals of the school and how they can be most effectively accomplished and efficiently evaluated is neglected. Many school goals require applied performance tests if student learning is to be completely evaluated.

Parenthetically, the term goal here is used to identify the long-range outcomes desired from the school as an institution as distinct from those enabling objectives, behavioral in form, used in day-to-day instructional planning. A classic example of educational goals is the

Cardinal Principles of Secondary Education developed in 1918.[6] The cardinal principles enumerated at that time were: health, command of the fundamental processes, worthy home membership, a vocation, civic education, worthy use of leisure time, and ethical character.

A more recent statement of institutional goals for schools is The Ten Goals of Quality Education adopted by the Pennsylvania State Board of Education in 1965, which follows:

1. Quality education should help every child acquire the greatest possible understanding of himself and an appreciation of his worthiness as a member of society.

2. Quality education should help every child acquire understanding and appreciation of persons belonging to social, cultural and ethnic groups different from his own.

3. Quality education should help every child acquire to the fullest extent possible for him, mastery of the basic skills in the use of words and numbers.

4. Quality education should help every child acquire a positive attitude toward the learning process.

5. Quality education should help every child acquire the habits and attitudes associated with responsible citizenship.

6. Quality education should help every child acquire good health habits and an understanding of the conditions necessary for the maintaining of physical and emotional well-being.

7. Quality education should give every child opportunity and encouragement to be creative in one or more fields of endeavor.

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[6] Commission on the Reorganization of Secondary Education, U. S. Office of Education. Cardinal Principles of Secondary Education (Washington, D.C.: Government Printing Office, 1918), Bulletin 35, p. 9.

8. Quality education should help every child understand the opportunities open to him for preparing himself for a productive life and should enable him to take full advantage of these opportunities.

9. Quality education should help every child to understand and appreciate as much as he can of human achievement in the natural sciences, the social sciences, the humanities and the arts.

10. Quality education should help every child to prepare for a world of rapid change and unforeseeable demands in which continuing education throughout his adult life should be a normal expectation.[7]

While not all states have adopted such goal statements, certainly every school system, as a result of curriculum development projects or evaluation by accreditation agencies, has some form of goal statement. In some instances, these statements may need to be updated to reflect current societal needs.

While the emphases among goals may shift over time, there is an an obvious common thread among those above and other kinds of institutional goal statements for schools. It is not so much the goals which are a matter of debate as the ways to teach and test for those goals. Applied performance testing involves moving closer to demonstration of performance in situations which bear a direct relationship to, or are re-creations of, problem situations the student may encounter as an adult. In addition to paper and pencil instruments related to instructional objectives, students are asked to manifest the capability to deal with life problems related to, or derived from, the goals of the school.

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[7]Commonwealth of Pennsylvania, The Report of the Citizens' Commission on Basic Education (Harrisburg, PA: 1973), pp. 22-23.

There are certain goals for schools that should be unique to specific communities or regions in the state or nation. Other types of goals, such as The Seven Cardinal Principles or Pennsylvania's Ten Goals of Quality Education, seem to be generally applicable to schools everywhere. Goals change over time and certain goals may be unique to individual schools, but within broad limits, public elementary and secondary schools have quite similar goals. Please note that "look-alike" schools and common teaching methods do not follow logically from similar goals. The emphases among goals, the curriculum and instructional methods used to attain goals, and the kinds of tests used in each school system should vary to reflect the nature and needs of the families and the community which the school serves. You are reviewing these materials because you wish to learn more about APT; perhaps APT is being considered in your school. It is extremely important that you and other teachers who may be involved consider such questions as:

1. How can we best determine the priority educational goals for this school in this community?
2. How can we best structure the curriculum so as to make optimum use of local resources in achieving these goals?
3. Can these priority goals be appropriately tested in applied performance settings, and, if so, how can this be done?

Although it may be possible to test all goals in an applied performance manner, the time involved in testing, scoring, and evaluating

and the staff resources needed for developing tests may dictate that only limited and very critical goals be tested via APT. Again, a local or perhaps personal decision is involved in narrowing the scope of initial applied performance testing efforts to the assessment of highly critical goals of obvious concern in the local community.

HOW DO APTs DIFFER FROM THE TESTS I NOW USE?
WHAT ARE THE SIMILARITIES AND DIFFERENCES?

Unless you are a teacher of physical education, industrial arts, foreign languages, music, art, home economics, or vocational education, you probably use tests of the paper and pencil type rather than performance tests as they have been defined here. Further, these paper and pencil tests are often quite subject and time specific; they deal with particular content or skills you have taught over a limited period of time in a unit or marking period. They do provide feedback to the student and the teacher as to what has been learned and what has been taught well, but they also serve as the basis for issuing marks and grades. If the latter purpose is uppermost in your mind, then you probably design the test with a variety of items ranging from very easy to very difficult in order to secure a spread or distribution of performance in the class. We refer to tests of this type used for this purpose as normative tests. They attempt to measure norms of student knowledge and performance related to either a normal distribution ("normal curve") or some other basis for distributing student performance on a range from very poor to very good.

More recently, the use of criterion referenced tests has been advocated by many experts in measurement and curriculum. A criterion referenced test assumes that all students, other than those who are mentally retarded or brain damaged, can demonstrate a command of instructional objectives at some pre-determined level of acceptability.

> Given sufficient time and appropriate types of help, 95% of students . . . can learn a subject with a degree of mastery.[8]

Criterion referenced tests require that instructional objectives be stated in behavioral or performance terms. In turn, test items are prepared which measure student performances on these objectives. Concepts such as varying degrees of difficulty and the normal curve are inappropriate in designing a criterion referenced test since we are not attempting to distribute student performance along some line from poor to good. Student performance on an item or group of items related to a particular behavioral objective is judged acceptable or non-acceptable. Unacceptable performance becomes the basis for re-teaching or reorganizing the instructional sequence so as to bring all students or the individual student to a criterion level of performance. If criterion referenced testing is used, then time must be allowed to vary, and a variety of instructional approaches must be used to bring all students to some acceptable level of mastery.

It is conceivable that applied performance tests will eventually be used for a number of purposes in schools. These might include:

Selection

Certification

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[8] B. Bloom, T. Hastings, and G. Madaus, Handbook on Formative and Summative Evaluation (New York: 1971), McGraw Hill Book Co., p. 43.

Diagnosis

Classification.[9]

Paper and pencil instruments, both standardized and teacher-made, are also used for these purposes. Where a test of any type is to be used for selection purposes, particular attention must be given to its power to discriminate between those who would benefit from a treatment or program and those who would not. Tests used for certification purposes, such as promotion to another school or graduation from high school, can be considered as a type of criterion referenced test. If the purpose of the test is classification of students within a course, class, or program, then it must have a sufficient number of items and range of difficulty to differentiate students on some continuum of competencies (normative or norm referenced). Diagnostic tests, whether of the paper and pencil or applied performance type, are designed to provide information so that appropriate instructional decisions can be made. Therefore, they should be designed to cover a more limited scope and to yield scores on sub-parts in order to assist you in identifying areas where learning difficulties are being encountered.

Although APTs can be used for all of the purposes listed, you will probably begin with their use for diagnostic purposes. Observing student responses and behavior in a diagnostic-type performance test will tell you

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[9]J. Sumida and others, "Guidelines for Evaluation of Applied Performance Test Materials and Procedures," Clearinghouse for Applied Performance Testing (Portland, Oregon: 1975), mimeographed, p. 3.

much about what to stress in your subject area or with your class. Where the nature of the problem or assignment requires individual testing, you can begin with a small number of students drawn at random from the class. Observing closely whether five randomly selected students in the class can make change, fill out a government form at the post office, secure needed information by telephone, fill out a job application, or calculate their parents' local property tax, can give you much information of value in designing classroom instructional sequences.

Applied Performance Tests may then be used for all of the purposes for which you ordinarily use paper and pencil instruments. Unless your state legislature or state department of education has mandated an applied performance certification or graduation requirement, you probably will not use these tests immediately for promotion or certification purposes. Where such use is mandated, it is usually in addition to course completion requirements, paper and pencil tests, etc.

Particularly at upper grade levels, APTs may differ in degree from the tests you ordinarily use in that they need not be as subject or time specific. An APT involving the selection and purchase of a major appliance, such as a refrigerator or freezer, can involve content and skills taught over several grade levels in language arts, social studies, mathematics, science, and home economics. Since APTs of this type involve a number of subjects, they will not be used as often as paper and pencil instruments or subject-centered applied performance tests. Please note, however, that the test proposed above, selection and purchase of a major appliance,

could be conducted by a teacher of any one of the subjects listed. It would provide valuable information about a student's competence in the subject and the extent to which he can combine knowledge from that subject with that learned in other classes. Careful analysis of student successes and failures on APTs can guide you in reducing the number of paper and pencil tests on some topics and perhaps increasing them on others.

Applied Performance Tests will always differ from paper and pencil instruments in either the reality of the stimulus provided to the student or the reality of the response required from him. Often they will concentrate on critical life goals, on those "survival skills" that the student will need to cope with such problems as job seeking, family responsibilities, and good citizenship. But APTs can also be used to test discrete behaviors within the curriculum that contribute to larger or more critical goals.

WHY SHOULD I USE APPLIED PERFORMANCE TESTING?

There are several good answers. First, it will help you improve your teaching by constantly leading you to focus on the relationship between your course offerings and the needs of society. You will be continually asking yourself, "How will what I am going to teach today affect the lives of my students when they complete school?" This continual concentration can only lead to more meaningful course content.

Second, APT will help you diagnose strengths and weaknesses in your teaching methods. Perhaps your students, particularly those who are masters at recall, who have done very well on paper and pencil tests, may do poorly when they are asked actually to perform the skills they have described. On the other hand, those who have previously faltered may do much better.

Third, APT has the potential to increase student motivation. Many youngsters who are turned off by certain types of learning may thrive on developing skills that they feel will be of practical value in the very near future.

Fourth, psychologists tell us that we learn best and remember longest that which we experience. Thus, performance learning can help reinforce what is offered in textbooks, lectures, and discussions.

Fifth, APT offers you a unique opportunity to develop a program in your own classroom. It need not be developed on a school-wide or system-wide basis. Oftentimes, the concepts you are teaching will lend themselves to applied performance testing techniques. All you need is the initiative to do a little self study and understand how to seek the help of resource

people who are readily available.

Sixth, APT will give you the opportunity to find and use resource people in your community. True, some of these persons with whom you will be talking may not be the type that attend all the PTA meetings or run for school board election, and that may be just the point. Probably they have no idea that their job is considered by educators to be essential in today's world. After they overcome their initial self doubts, you may find them very willing to cooperate and help you train and evaluate students. Naturally, you will need a cooperative school administrator to help you in this undertaking. However, most principals realize the importance of good community relationships and will probably welcome any initiative on your part.

Finally, APT can be a valuable tool in countering criticism of schools and teachers by disgruntled citizens. The basis of much of their criticism is that they see little practical outcome from the investment in elementary or secondary schools or the kinds of education we provide. Applied Performance Testing can help demonstrate the value of the education you provide and assist you in making that education more relevant to the needs of society today.

DISCUSSION GUIDE

Following are a few questions concerning the material you have just read. If you are studying the material alone, you may wish to jot down your reactions now; if you are participating in this work with other teachers, these may serve as the basis for a discussion session.

1. What examples would you add to the lists of applied performance tests on pages 7 - 9?

2. Do you agree with the list of essential characteristics for applied performance tests presented on page 12? Would you add or delete any characteristics? Why?

3. Do you know of any applied performance tests now being used in your school system? Describe them briefly.

4. Which subject areas or topics that you now teach could be tested most readily using applied performance procedures?

5. What would be a suitable applied performance test for determining:

   a. a primary age youngster's knowledge of safety practices to be followed by pedestrians crossing a busy intersection?

   b. a middle school student's ability to handle basic skills in reading, writing, and computing?

   c. a senior high school student's ability to select and purchase wisely some major household item?

   d. a primary age youngster's ability to detect false claims and overstatements in advertising?

   e. a high school graduate's ability to get a job?

6. Are all of the examples in #4 above critical in terms of the goals of your school system? Why or why not?

7. What are the most important reasons for using applied performance tests in the schools in your community?

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